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General Physiology is the study of biological mechanisms through analytical investigations, which decipher the molecular and cellular mechanisms underlying biological function at all levels of organization.

The mission of the *Journal of General Physiology* is to publish articles that elucidate important biological, chemical, or physical mechanisms of broad physiological significance.

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Cover picture: Logo for the 2010 SGP Symposium, "New optical methods in cell physiology." Please see abstracts to be presented at the meeting, in this issue (1a–15a).

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Cover picture: A schematic model for the local control of EC coupling and ET coupling in nerve and muscle. In this model, AKAP150 targets PKCα, PKA, and PP2B to specific regions of the membrane where they modulate the gating modalities of a subpopulation of Cav1.2 channels. Together, this signaling pentad constitutes a regulatory module that controls local Ca^{2+} influx, excitation–contraction coupling, and NFAT-dependent gene transcription (see Perspective by Santana and Navedo, 143–147).

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Cover picture: Proposed relative motion between transmembrane helices S0 and S4 in the BK_{Ca} voltage sensor. At rest (top left), W203 (outside S4) quenches a fluorophore (TMRM) labeling S0. Upon depolarization, S0 and S4 move apart, separating W203 from TMRM (top right), causing a large fluorescence increase (bottom; red trace). In W203V mutants, TMRM is not quenched (middle) and exhibits a negligible fluorescence increase on depolarization (bottom; blue trace) (see article by Pantazis et al., 645–657).